Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

ChAdOx1 n-COV 19 Vaccine Protected Health Care Workers From Severe Infection Caused by the Variants

To the Editor: India has recently witnessed the "tsunami" of the second coronavirus disease 2019 wave, which resulted in more than 400,000 new cases at its peak in mid-May 2021.[1] The infections occurring after 2 weeks of the complete vaccination are termed breakthrough infections (BTIs).[2] These BTIs occur in a small percentage of vaccinated persons.[3]

We report the incidence and clinical implications of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) variants in our symptomatic health care workers (HCWs) with postvaccination infections (PVIs). Between January 16 and April 24, 2021, 3235 HCWs were immunized with ChAdOx1 n-COV 19 vaccine-recombinant. Eighty-five (2.6%) of them acquired PVIs. The majority were young adults, with an average age of 34.2 years. Among these, 51 were fully vaccinated with 2 doses (73.91%). The time for the onset of symptoms after vaccination ranged from 2 to 86 days, with an average of 34.8 days.

We analyzed the available real-time polymerase chain reaction (RT-PCR) samples of 69 of these positive HCWs with genome sequencing. The predominant infections occurred from the B.1.617.2 lineage (49.25%), followed by B.1 (28.35%), and B.1.1.7 (11.94%) strains (Table). A total of 61.19% were the variants of concern (VOC; eg, the Delta and Alfa variants).

A significant difference ($P<.05$) was observed between the early infections (<2 weeks) compared with late infections (>2 weeks) in all age groups. There were two hospital admissions (2.89%) but no intensive care unit (ICU) admissions and deaths. Both the admitted cases were adult males aged 46 and 64 years, respectively. They acquired the infection after 21 and 24 days, respectively, of their last vaccination and were infected with the Alpha and Delta variants, respectively.

SARS-COV-2 infections after coronavirus disease 2019 vaccination have been recognized globally and are a cause of concern. These infections may occur after partial or complete vaccination for several reasons, such as inadequate development of immunity, lack of safety precautions, and the emergence of VOC.[4] The VOC are highly transmissible and can bypass the immunity of any individual, even after full vaccination.[3] There is available evidence that the vaccination may make illness after BTI less severe.[2] The majority of our cohort also had minor infections, none required admission in the ICU, and there were no deaths. These findings are significant because more than half of the cohort was infected with the VOC and still escaped the severe illness. We acknowledge that our cohort had a younger population and did not have major medical comorbidities. Hence, these results cannot be translated to the older population who may be at a higher risk of acquiring severe infection. However, we noted a high incidence of hospital and ICU admissions and deaths among cases who were not vaccinated in a separate study.[5]

A small subset of HCWs demonstrated PVIs with SARS-COV-2. The most common cause of these infections were the mutant virus B.1.617.2, B.1, and B.1.1.7 strains. Although these were lineages of VOC, prior vaccination protected this younger cohort from any severe disease requiring hospital and ICU admissions and deaths.

TABLE. Distribution of Lineage of SARS-COV-2 Mutants in the Fully and Partially Vaccinated Groups (N=69)

SARS-CoV-2 lineage	Fully vaccinated group (n=51)	Partially vaccinated group (n=18)	Total n (%)
B.1	15	4	19 (27.5)
B.1.1	3	1	4 (5.97)
B.1.1.7 (Alpha variant of concern)	6	2	8 (11.94)
B.1.393	1	1	2 (2.98)
B.1.596	1	0	1 (1.49)
B.1.617.2 (Delta variant of concern)	23	10	33 (49.25)
No content (excluded)	2	0	2 (2.89)

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1. Vaishya R. The havoc caused by the 2nd wave of COVID-19 in India. *Apollo Medicine*. 2021;18(2):71-72.
2. COVID-19 Breakthrough Case Investigations and Reporting. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccines/covid-19/health-departments/breakthrough-cases.html. Accessed May 12, 2021.
3. SARS-CoV-2 Variant Classifications and Definitions. Centers for Disease Control and Prevention. https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html#:~:text=Viral%20mutations%20and%20variants%20in,Variant%20of%20Interest. Accessed May 17, 2021.
4. Science Brief: Emerging SARS-CoV-2 Variants. Centers for Disease Control and Prevention. https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/scientific-brief-emerging-variants.html. Accessed January 28, 2021.
5. Vaishya R, Sibal A, Sharma H, Singh SK. Lack of vaccination and associated comorbidities predispose to the need for intensive care in individuals infected with the delta variant — a case cohort study from a tertiary care hospital in New Delhi, India. *Diabetes Metab Syndr*. 2021;15(4):102203.

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HLA Antibody Rates Are Not Increased in a Regional Group of Male COVID-19 Convalescent Plasma Donors

To The Editor: Coronavirus disease 2019 (COVID-19) convalescent plasma (CCP) remains a widely used therapeutic option for patients hospitalized for COVID-19 as further variant strains continue to arise. We recently reported significantly elevated positivity rates ($P < .0001$) for HLA antibodies (HLA-Abs), a risk factor for transfusion-associated acute lung injury, in 5 of 69 local male CCP donors (7.2 %).[1,2] As noted in a subsequent reply letter though, CCP has repeatedly exhibited a safety profile similar to standard plasma.[3,4] Because HLA-Ab screening is not routinely performed on male donors, it remains unclear whether male CCP donors truly have an elevated HLA-Ab screening positivity rate and pose a potential increased transfusion-associated acute lung injury risk to CCP recipients. In collaboration with several blood donation organizations, we assessed the prevalence of positive HLA-Ab screening results in male CCP donors across the southeastern United States.

Male CCP donors who donated from April 27 through August 24, 2020, at Kentucky Blood Center, LifeSouth Community Blood Centers, Mississippi Blood Services, Shepeard Community Blood Center, and South Texas Blood & Tissue Center with sufficient residual serum and de-identified demographic data available were eligible for this cross-sectional study. All CCP donors provided permission to use de-identified donor information and serum samples for research. Given the de-identified nature of this study, clinical information on COVID-19 infection and past pregnancy, transfusion, or transplantation history was not available. Each male CCP serum sample was identified using the associated CCP unit's ISBT 128 donation identification number. This study was approved by the local institutional review board.

All CCP serum samples were screened for HLA-Abs using the same LABScreen Mixed Class I and Class II assays (One Lambda) and performed by the same American Society for Histocompatibility & Immunogenetics-accredited tissue typing laboratory that offers blood donor HLA-Ab screening.[1] Positive screening cutoff ratios for these HLA-Ab screening assays (class I ratio, >30; class II ratio, >18) had been previously established by the laboratory using a +5SD mark in a population of male never-transfused blood donors following a published methodology.[5]

Five hundred twenty-six male CCP donors with sufficient residual serum and de-identified demographic information available were screened for HLA-Abs (Figure). The median donor age at the time of CCP collection was 48.8 years (range, 16.0-85.5 years). Only 2 of 526 male CCP donors screened positive for HLA-Abs (0.3%) within the expected less than 1% screening positivity rate. These 2 male CCP donors screened positive only for class I HLA-Abs (class I ratios, 33.74 and 60.91), were collected at different blood donation organizations, and were older at CCP donation (age, 68.8 and 73.3 years) than most male CCP donors. The positivity rate in this male CCP donor population significantly differed from the previously reported 7.2% HLA-Ab screening positivity rate (Fisher exact, $P=.001$).

This larger cross-sectional study does not support an association between increased HLA-Ab screening positivity rates and recent COVID-19 infection in male CCP donors. These discrepant findings between these 2 male CCP groups may be due to time differences since donor COVID-19 infection or regional differences in infecting COVID-19 strains or may indicate a false-positive study result in our initial report.